

GLENDa QC IDs

(Qc_ident.xls)

Code	Name	Description	Purpose	Field or Lab Flag
CAL	Calibration solution	Aliquot of target analyte(s) or reference material of known concentration analyzed using the exact instrument and conditions to analyze routine field samples	To set/calibrate instrument response relative to various concentrations of analyte(s) prior to the laboratory production run	B
CHn	Standard check, high ("n"-th member from lab)	The "n"-th aliquot of solution with known high concentration (e.g.. 80%) of subject analyte. Not carried to field. Analyzed using exact instrument used to analyze routine field samples	To evaluate how closely reported result matches the "known" high value. If not identical, can indicate (1) inaccurate instrumentation at high end of reporting spectrum or (2) possible contamination from lab	L
CLB	Blank check, continuing	Aliquot of reagent water analyzed for background levels of the target analyte(s) using the exact instrument and conditions used to analyze routine field samples. This aliquot will be run several times during the production run	To verify instrument background and/or check for contaminant buildup in the instrument during the production run	B
CLC	Calibration check, continuing	Aliquot of subject analyte(s) or reference material (different source than CAL solution) of known concentration analyzed using the exact instrument used to analyze routine field samples. This aliquot will be run several times during the production run	To verify whether the initial calibration data are still valid at various points in the laboratory production run (i.e., to measure instrument "drift")	B
CLM	Calibration solution, initial of multiple point	Initial aliquot of target analyte(s) or reference material of known concentration analyzed using the exact instrument used to analyze routine field samples. Used when a group of calibrations is required at different levels of target analyte concentrations	To set/determine the initial instrument response during multipoint calibration (i.e., calibration using three or more standards of known, but different, concentrations)	B
CLn	Standard check, low ("n"-th member from lab)	The "n"-th aliquot of solution with known low concentration (e.g.. 20%) of subject analyte. Not carried to field. Analyzed using exact instrument used to analyze routine field samples	To evaluate how closely reported result matches the "known" low value. If not identical, can indicate (1) inaccurate instrumentation at low end of reporting spectrum or (2) possible contamination from lab	L
CLS	Calibration solution, initial of single point	Initial aliquot of target analyte(s) or reference material of known concentration analyzed using the exact instrument used to analyze routine field samples. Used when target analyte concentration will be in a fixed range	To set/determine the initial instrument response during singlepoint calibration (i.e., calibration using a single standard of known concentration)	B
DDLS	Daily detection limit solution	Aliquot of reagent water or other neutral item (resin, filter) analyzed only to calculate daily detection limits of instruments	To calculate daily detection limits	L
FBB	Blank, field bottle	Aliquot of reagent water placed in one empty sample container (e.g., bottle) in the field. Not exposed to any other field activity. Otherwise handled same as routine field sample in all facets of transport and lab analysis.	To isolate and evaluate potential contamination that may have pre-existed in the sample containers prior to filling them with actual samples	F

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FBS	Blank, field source water	Aliquot of reagent water passed through entire train of sampling equipment before it is used to take routine field sample. Not exposed to any other field activity. Otherwise handled, transported, and analyzed same as routine field sample	To isolate and evaluate potential contamination introduced to samples from entire configuration of sampling gear	F
FBT	Blank, field tubing	Aliquot of reagent water passed through field tubing before it is used to take routine field sample. Not exposed to any other field activity. Otherwise handled, transported, and analyzed same as routine field sample	To isolate and evaluate potential contamination introduced to samples by the sampling line	F
FCM	Control solution, field	Aliquot of reagent water or other neutral item (resin, filter) to which known quantity of target analyte is added in the field. Otherwise handled, transported, and analyzed same as routine field sample	To evaluate how closely reported result matches the "known" value added in field. If not identical, can indicate (1) presence of subject analyte in environment below detection limits or (2) possible contamination from field, transport, or lab	F
FDn	Duplicate, ("n"-th member from field)	The "n"-th duplicate of a routine field sample (RFS). Taken at the SAME TIME and SAME PLACE, using the same gear, and treated same as RFS through all field, transport, and lab procedures	To evaluate field sampling and matrix variability when duplicate samples theoretically contain the same amount of the subject analyte	F
FFB	Blank, field filter	Aliquot of reagent water passed through field filter material before it is used on routine field sample. Not exposed to any other field activity. Otherwise handled, transported, and analyzed same as routine field sample	To isolate and evaluate potential contamination introduced to samples by filter materials used in the field	F
FFM	Blank, field fortified	Aliquot of sample matrix (known to be below detection for target analyte) to which a known concentration of target analyte is added in field. Otherwise handled, transported, and analyzed same as routine field sample	To enable detection/quantification of subject analyte by raising the "known" amount in the sample above detection/quantification limits	F
FMB	Matrix blank, field	Unexposed sample collection medium (e.g., dry deposition plate) carried to field and left unexposed for the duration of sampling event. Otherwise handled, transported, and analyzed same as routine field samples	To evaluate contamination from the sampling medium, field collection activities, and transportation practices	F
FRB	Blank, field reagent	Aliquot of reagent water or other neutral item (resin, filter) containing all reagents, preservatives, solvents, standards used to process routine field sample. Handled, transported, and analyzed same as routine field sample	To identify and/or evaluate potential contamination introduced to samples from any source in the field, during transport, or in the laboratory	F
FRM	Reference material, field	Aliquot containing a certified value of the target analyte (aliquot usually from NIST). Not exposed to any field conditions, equipment, or additives. Sent to lab from field crew. Handled, transported, and analyzed same as routine field sample	To evaluate how closely lab reported result matches the "certified" value. If not identical, can indicate (1) inaccurate analytical procedures or (2) possible contamination from field, transport, or lab	F

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FSF	Spiked sample, field (final value)	One part of a routine field sample that is split in the field. This split (FSF) is fortified in field with known concentration of analyte and analyzed in the lab according to the specified method. The other split is analyzed without fortification	To evaluate the amount of target analyte existing in the fortified sample so that it can be compared to a "duplicate" sample (FSO) that should be identical in all ways except that it did not have addition of the subject analyte	F
FTB	Blank, field trip	Aliquot of reagent water or other neutral item (resin, filter) carried to field but NOT exposed to any field conditions, equipment, or additives. Handled, transported, and analyzed same as routine field sample	To isolate and evaluate potential contamination introduced to samples during sample transport. Used as QC for samples taken during an entire trip	F
IDLs	Instrument detection limit solution	Aliquot of target analyte(s) or reference material of known concentration analyzed only to calculate instrument detection limits	To calculate instrument detection limits	L
IFB	Blank, field instrument	Aliquot of reagent water or other neutral item (resin, filter) created in field and analyzed in field for background levels of the target analyte using the exact instrument to be used in subsequent analyses when conducted in field	To 1) test for instrument contamination or 2) verify results from calibration blank	F
ILB	Blank, lab instrument	Aliquot of reagent water or other neutral item (resin, filter) created in lab and analyzed for background levels of the target analyte using the exact instrument to be used in subsequent analyses	To 1) test for instrument contamination or 2) verify results from calibration blank	L
LCB	Blank, lab calibration	Aliquot of reagent water or other neutral material (resin, filter), possibly adjusted in pH, but without addition of any other reagents. Created in lab and analyzed using the exact lab instrument used to analyze routine field samples	To test and adjust instrument settings for "zero level" prior to, or during, sample analysis	L
LCM	Control solution, lab	Aliquot of reagent water or other neutral item (resin, filter) to which known quantity of target analyte is added. Contains same reagents, solvents, standards, etc. as routine field sample. Created in lab. Handled and analyzed same as routine field sample	To evaluate how closely reported result matches the "known" value added in lab. If not identical, can indicate (1) presence of subject analyte in environment below detection limits or (2) possible contamination from lab materials or equipment	L
LDB	Blank, lab dry	Aliquot with all reagents, internal standards, surrogates, and solvents to be added to routine field sample EXCEPT has no reagent water/neutral material. Created in lab. Handled and analyzed same as routine field sample	To evaluate possible contamination from reagents, standards, solvents, surrogates, etc. when reagent water is NOT present	L
LDF	Diluted sample, lab (final value)	One part of a routine field sample that is split in the lab. This portion (LDF) is analyzed according to the specified method after dilution. The other portion is analyzed without dilution	To assess precision of lab dilution techniques and to evaluate potential contamination in dilution material. Done by comparing to a "duplicate" sample (LDO) that should be identical in all ways except that it did not have addition of the diluting material	L
LDn	Duplicate, ("n"-th member from lab)	The "n"-th duplicate of a routine field sample. Created in the lab and treated same as routine field sample through all procedures	To evaluate lab variation in reported results when duplicate samples theoretically contain the same amount of the subject analyte. Provides precision assessment of results	L

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Code	Name	Description	Purpose	Field or Lab Flag
LFn	Spiked sample, lab (Final values - "n"-th member)	The "n"-th duplicate of the "Spiked Sample, Lab Final Value" (LSF). Used when routine field sample is split in two portions, one portion is analyzed with spiking (LSF). The LSF may be duplicated n times	To verify the results from Spiked Sample, Lab Final Value (LSF)	L
LIM	Interference check sample, lab	Solution with known concentration of a suite of target analytes. Created in lab and analyzed using exact instrument used to analyze routine field samples	To evaluate spectral interferences on the signature of one analyte caused by another analyte in the suite being tested. Only checks interference from instrumentation (does not check interference from matrix)	L
LIS	Internal standard, lab	Routine field sample fortified with addition of a known concentration of a standard compound which does not occur in the environment but which does have similar spectral signature during analysis	To enable quantification of the analyte(s) of interest by enhancing the magnitude of the spectral signature. Often used when target analytes are "detected but not quantifiable" without the lab internal standard	L
LMB	Matrix blank, lab	Unexposed sample collection medium (e.g., dry deposition plate) NOT carried to field. Handled and analyzed in lab same as routine field samples	To evaluate lab-induced contamination from sample collection media, reagents, and methods	L
LMn	Matrix spike multiple, lab	N-th duplicate of the lab matrix spike (LMS). Aliquot of routine field sample split from "true" sample. Fortified with a known concentration of target analyte(s). Created in the lab. Handled and analyzed same as routine field sample	To evaluate matrix effect on routine field samples. Checks interference both from matrix and laboratory instrumentation. Provides precision assessment of LMS	L
LMS	Matrix spike, lab	Aliquot of routine field sample split from "true" field sample. Fortified with a known concentration of target analyte(s). Created (ie. split and fortified) in the lab. Handled and analyzed same as routine field sample	To evaluate matrix effect on routine field samples (e.g., does organic content of matrix sorb any of the spiked material). Checks interference both from matrix and laboratory instrumentation	L
LPB	Blank, lab procedural	Aliquot containing all reagents, internal standards, surrogates, and solvents in same volumes used to process/analyze RFS. Created in lab. Contains no field collection media (XAD resin) or dummy blank matrix (reagent water). Handled/analyzed same as RFS	To evaluate possible contamination biases from the reagents and solvents used in the process without the interfering presence of sample collection media or dummy sample matrix	L
LPC	Performance check solution, lab	Aliquot containing a solution with known concentrations of target analyte(s), surrogate(s), and/or internal standards used to evaluate the performance of an instrument with respect to a defined set of criteria	To evaluate the performance of a lab instrument with respect to a pre-defined set of criteria	L
LPn	Procedural spike duplicate, lab	N-th duplicate of the lab procedural spike (LPS). Aliquot of reagent water or other neutral item containing all reagents, solvents, standards, surrogates as routine field sample. Fortified with known quantity of target analyte. Created in lab.	To evaluate the accuracy of extraction and analysis of target analytes in the absence of field matrix interferences. Also to evaluate potential contamination from extraction solvent. Provides precision assessment of LPS	L
LPS	Procedural spike, lab	Aliquot of reagent water or other neutral item (filter, resin) containing all reagents, solvents, standards, surrogates as routine field sample. Fortified with known quantity of target analyte. Created in lab. Handled & analyzed same as rout. field sample	To evaluate the accuracy of extraction and analysis of target analytes in the absence of field matrix interferences. Also to evaluate potential contamination from extraction solvent	L

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LRB	Blank, lab reagent	Aliquot of reagent water or other neutral item (resin, filter) containing all reagents, internal standards, surrogates, and solvents used to process/analyze routine field samples. Created in lab. Handled and analyzed same as routine field sample	To identify and/or evaluate potential contamination introduced to samples from any source in the laboratory	L
LRS	Reference sample, lab	Reference sample of the same matrix as a routine field sample. The reference sample has a mean value, established over time, which is specific to the lab running the analysis. Created in the lab. Handled and analyzed same as routine field sample	To evaluate performance of lab equipment against known concentrations of target analyte. (Similar to standard solutions, except created by lab rather than some external entity like EMSL or NIST)	L
LSB	Blank, lab solvent	Aliquot containing solvents used to process/analyze routine field sample. Does not contain reagent water, standards, surrogates, or other reagents. Created in lab. Handled and analyzed same as routine field sample	To isolate and evaluate possible contamination introduced to routine field samples from solvents	L
LSD	Spike duplicate, lab	Routine field sample which is analyzed according to the analytical method, and is the 2nd of two independent aliquots of the sample taken for fortification with target analyte(s)	To assess lab precision on sample matrix and to assess matrix variability	L
LSF	Spiked sample, lab (final values)	One part of a routine field sample that is split in lab. This split (LSF) is fortified in lab with known concentration of analyte and analyzed in the lab according to the specified method. The other split is analyzed without fortification	To evaluate the amount of target analyte existing in the fortified sample so that it can be compared to a "duplicate" sample (LSO) that should be identical in all ways except that it did not have addition of the subject analyte	L
LSS	Surrogate spike, lab	Routine field sample fortified with a surrogate of the target analyte(s) which mimics the target analyte but which is not normally found in routine field sample. Handled and analyzed same as routine field sample	To evaluate bias in the sample matrix (usually as a function of percent recovery of the surrogate)	L
LTB	Blank, lab trip	Aliquot of reagent water or other neutral item (resin, filter) created in lab. Not carried to field. Handled, transported, and analyzed same as routine field sample	To isolate and evaluate potential contamination introduced to samples during lab processing/analysis. Used as QC for samples taken during an entire trip	L
LVM	Calibration verification solution, lab	Aliquot of reagent water or other neutral item (resin, filter) to which known quantity of target analyte is added. Created in lab. Analyzed using exact instrument used to analyze routine field samples	To verify calibration reached with LCM sample	L
MDLS	Method detection limit solution	Standard solution containing known quantities of target analytes in units comparable to the routine field sample. Standard solution created in accordance with 40 CFR, Part 136, Appendix B (e.g., Ultra 10 congener and pesticide/TNC/atrazine standards)	To establish concentration range of analytical equipment where quantification is reliable	L

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Code	Name	Description	Purpose	Field or Lab Flag
MSB	Matrix spike blank, lab	Aliquot of same sample matrix as RFS (though not collected in field for this project) with historically known/established concentration of target analyte(s). Analyzed using exact instrument used to analyze routine field sample	To determine background levels of analytes in matrix used to process Laboratory Procedural Spike (LPS). The MSB is a historically "clean" environmental sample used as an LPS	L
RFS	Routine field sample	Sample or aliquot collected in the field. Routine field samples are the actual, "real" samples taken in the field. Not a quality control sample of any kind	To assess the environmental "level" of the subject analyte, species of interest, or other collected entity	F
SFB	Spiked blank, field	Aliquot of reagent water/solvent used in routine field sample extraction. Includes internal standards and surrogates with known level of target analytes added in the field. Not processed on adsorption media. Handled, transported, and analyzed same as RFS	To evaluate recovery of target analytes without interference from adsorption media	F
SFDn	Sequential duplicate ("n"-th member from field)	The "n"-th duplicate of a routine field sample (RFS). Taken at the SAME PLACE but somewhat LATER TIME as RFS, using the same gear, and treated same as RFS through all field, transport, and lab procedures	To evaluate field sampling and matrix variability when duplicate samples theoretically contain the same amount of the subject analyte. The sample is taken at different time than RFS when the method or conditions make it difficult for true duplication	F
SLB	Solvent spike, lab	Aliquot of solvent at same volume used in routine field sample extraction, includes internal standards/surrogates, fortified in lab with known levels of target analytes. Not processed on adsorption media. Handled and analyzed same as routine field sample	To evaluate recovery of target analytes without interference from adsorption media	L
SRHn	Standard check, high ("n"-th member from field)	The n-th aliquot of solution with known high concentration (e.g. 80%) of target analyte. Carried to field and exposed to same conditions/equipment as routine field sample. Handled, transported, and analyzed same as routine field sample	To evaluate how closely reported result matches the "known" value. If not identical, can indicate (1) inaccurate instrumentation at high end of reporting spectrum or (2) possible contamination from field, transport, or lab	F
SRLn	Standard check, low ("n"-th member from field)	The n-th aliquot of solution with known low concentration (e.g. 20%) of target analyte. Carried to field and exposed to same conditions/equipment as routine field sample. Handled, transported, and analyzed same as routine field sample	To evaluate how closely reported result matches the "known" value. If not identical, can indicate (1) inaccurate instrumentation at low end of reporting spectrum or (2) possible contamination from field, transport, or lab	F
SRM	Reference material, standard	Aliquot containing a certified value of the target analyte (aliquot usually from NIST). Never carried to field. Analyzed same as routine field sample	To evaluate how closely reported result matches the "certified" value (ie, check on accuracy/precision or calibration of the measurement system). If values are not identical, can indicate (1) inaccurate analytical procedures or (2) possible contamination	L